

ABSTRACT OF THE DISCLOSURE

The present invention provides a method and apparatus for optical spectral power monitoring employing novel frequency-division-multiplexing detection schemes. The optical spectral power monitoring apparatus of the present invention uses a wavelength-dispersing means (e.g., a diffraction grating) to separate a multi-wavelength optical signal into multiple spectral channels, and an array of beam-modulating elements (e.g., micromirrors) positioned such that each beam-modulating element receives a unique one of the spectral channels. The beam-modulating elements are individually controllable such that the optical power levels of the spectral channels coupled into an output port carry distinct dither modulation signals. By performing a synchronous detection of the dither modulation signals, in conjunction with a predetermined calibration table, an optical power spectrum of the multi-wavelength optical signal can be derived. Such dither modulation signals may also be used as "identification markers" (or frequency tags) for identifying individual spectral channels in an optical networking application.

10006533-120501